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(54) **Sack**

(57) A sack comprises a tube (1*a*, 1*b*) of woven plastics material. Under the bottom (7, 18) of the sack a strap is provided, the ends (10*a*, 10*b*) of which when the sack is completely stretched out being diametrically oppositely secured to the side walls (1*a*, 1*b*) of the sack tube. Several straps may be provided. A liner may be inserted into the sack. The sack may valved.

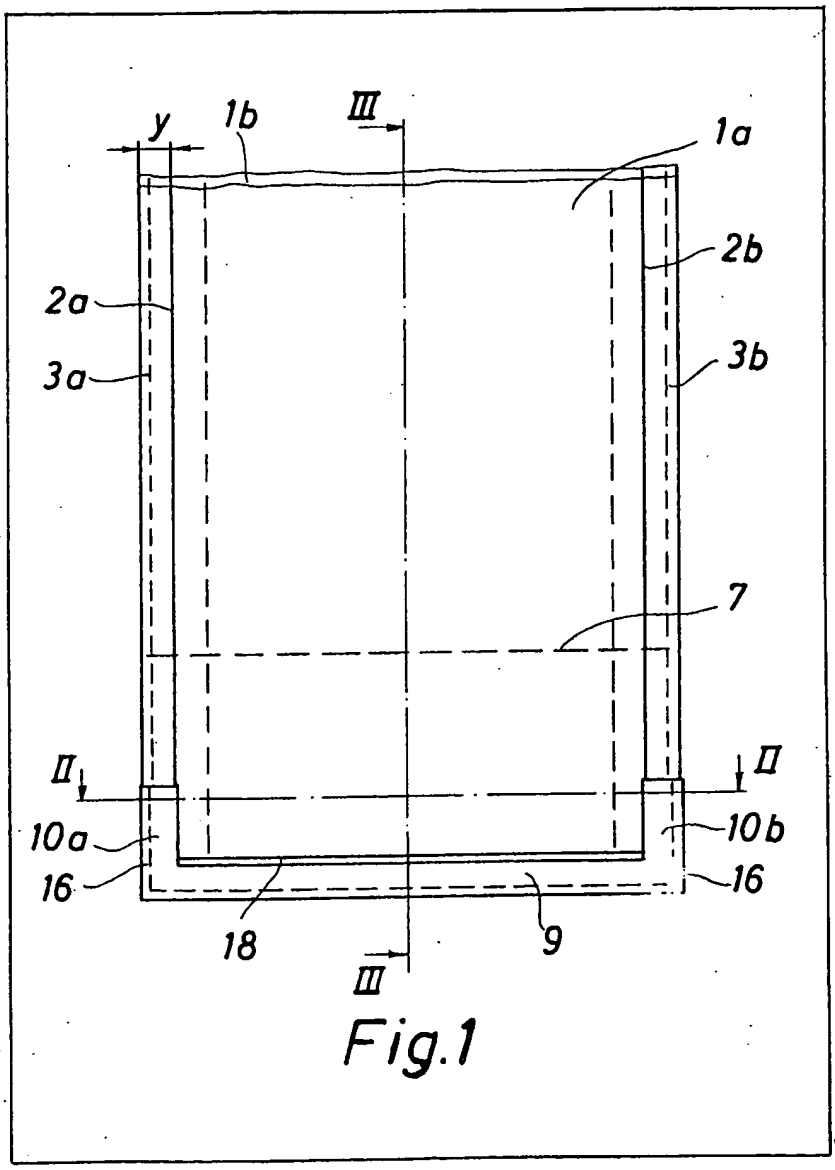


Fig.1

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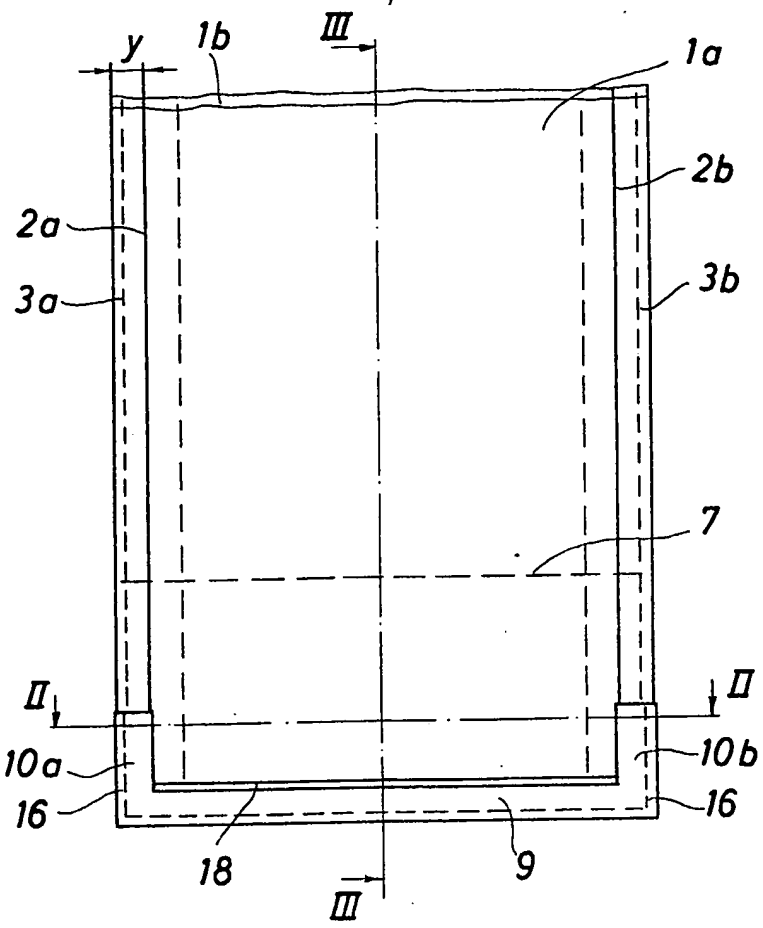


Fig.1

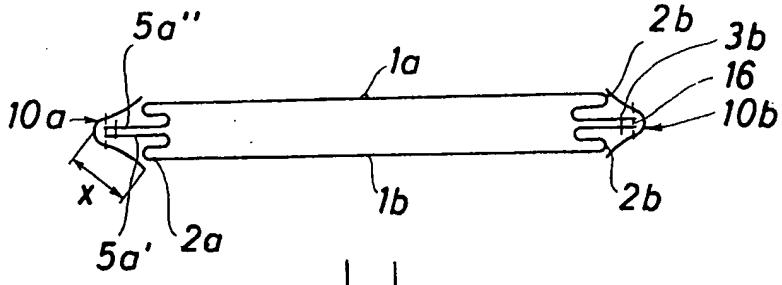


Fig.2

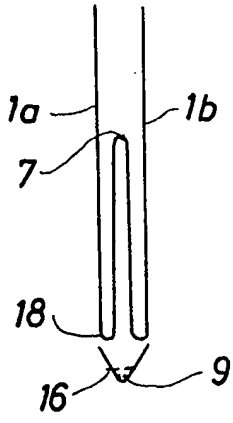


Fig.3

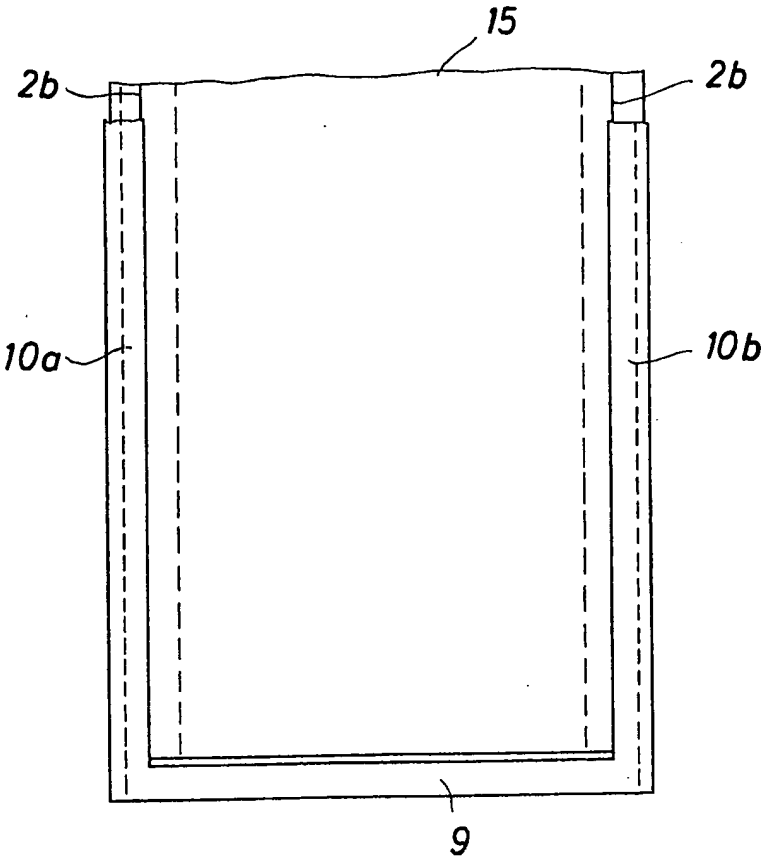


Fig. 4

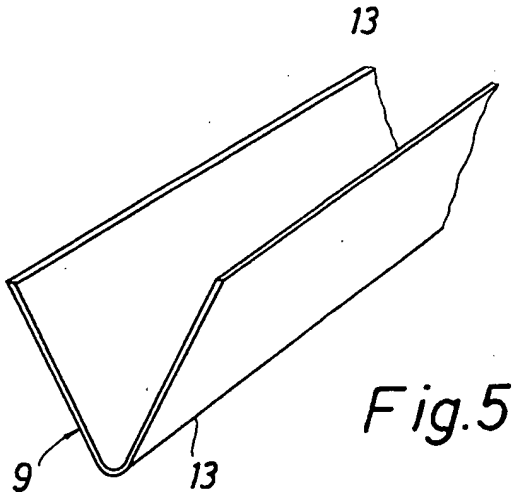


Fig.5

SPECIFICATION

**A sack for powdered or granular material**

The invention relates to a sack for powdered or granular material and comprising a sack tube preferably of woven material, said sack tube comprising a bottom and at the top optionally a sack valve.

Sacks of the above type, especially large sacks for instance for 1000—1500 kg, are encumbered with the difficulty of making the bottom of the sack sufficiently strong, as well as it is difficult to handle the sack quickly, e.g. during the emptying procedure.

The object of the present invention is to provide a sack of the above type, which is very strong at the bottom, and which is very easy to handle, e.g. during the emptying thereof.

The sack according to the invention is characterised in that under the bottom of the sack at least one strap is provided, the ends of which when the sack is completely stretched, are diametrically oppositely secured to the side walls of the sack tube. Such a strap strengthens the bottom of the sack essentially when the sack is completely filled. Usually the bottom constitutes the weakest portion of the sack. However, such a strap also facilitates the handling of the sack since the fork leg of a fork lift truck relatively easy may catch said strap and turn the sack upside down, thus facilitating the emptying of the sack. A sack with a sack tube made preferably of an oblong piece of fabric folded and sewn along the side edges and furthermore comprising a bottom fold, is according to the invention characterised in that the strap ends when the sack is flattened, are secured preferably by sewing along the part of each side edge of the sack, whereby a particularly strong sack is obtained.

According to the invention, double side folds with fold portions may be provided along the two side edges of the sack, said fold portions extending a short distance past said side edges, and the strap ends may be secured to these fold portions. As a result a sack is obtained which is suited for very large volumes.

Moreover according to the invention, the strap may be formed by a band being relatively narrow compared to the width of the sack and preferably being made of the same material as the sack, said band preferably being folded about its longitudinal central line in such a manner that it is V-shape in cross section, and the band where secured may grip about said projecting fold portions and be sewn thereto at its central line. Thus the band protects part of said projecting fold portions, viz. the part provided at the bottom of the sack. i.e. the part adjacent the bottom fold of the sack.

According to the invention, the band forming the strap may be of such a length that the band ends may be secured to said fold portions in large parts of the sack height, preferably the entire sack height, whereby a general strengthening of the sack is obtained. As a result, it is rendered possible to use said sack for transport of heavy powdered or granular materials.

Furthermore according to the invention, the band may be of such a length that it when the sack is flattened may extend about the entire periphery of the sack, whereby it may optionally co-operate in forming a strap at the top of the sack. As a result, the strength of the sack is increased and the handling possibilities of said sack are facilitated.

Finally according to the invention, the band forming the strap may when folded be of a width being a short distance larger than the part of said fold portions projecting beyond the side edges of the sack, whereby the latter when the sack is flattened obtain a predetermined protection of the band.

The invention will be described below with reference to the accompanying drawing, in which

Fig. 1 illustrates a sack according to the invention which is provided with a strap under its bottom,

Fig. 2 is a sectional view of the sack of Fig. 1 taken along the line II—II of Fig. 1,

Fig. 3 is a sectional view of the sack of Fig. 1 taken along the line III—III of Fig. 1,

Fig. 4 illustrates a second embodiment of the sack according to the invention, whereby the band forming the strap extends upwards along the side edges of the sack, and

Fig. 5 is a perspective view of part of the strap according to the invention.

The sack illustrated in Fig. 1 comprises a sack tube of an oblong piece of fabric, said fabric being folded in such a manner that two side walls 1*a* and 1*b* are provided. By means of seams 3*a* and 3*b*, these side walls 1*a* and 1*b* are sewn together along the side edges 2*a* and 2*b* of the sack. These seams 3*a* and 3*b* are positioned opposite the side edges 2*a* and 2*b* because the side walls 1*a* and 1*b* along their side edges 2*a* and 2*b* comprise double side folds with fold portions 5*a*′, 5*a*″, and 5*b*′, 5*b*″, respectively. These fold portions extend a short distance beyond the side edges 2*a* and 2*b*, respectively. The sack tube furthermore comprises a bottom fold 7 preferably being rather large in order to provide the sack with a large bottom surface. In this manner the sack is suited for large amounts of materials, 18 being the bottom edge of the sack tube.

As illustrated in Figs. 1 and 3, a strap 9 is provided under the bottom 18 of the sack. The ends 10*a* and 10*b* of this sack are secured preferably by sewing along the seams 3*a* and 3*b* at the side edges 2*a* and 2*b* of the sack. When the sack is filled and consequently stretched out, the sack tube is substantially circular, and the strap ends 10*a* and 10*b* are then diametrically oppositely located relative to the sack tube. The strap ends 10*a* and 10*b* need not be secured exactly at the seams 3*a* and 3*b*, but may extend under the sack in many other ways. They are, however, always secured in such a manner that they oppose each other diametrically when the sack is stretched out.

How far the strap ends 10*a* and 10*b* are to

extend upwards along the sack depends on the desired strengthening of the sack. When the sack is filled the strap so to speak keeps the sack together at its bottom.

As illustrated in Figs. 1 and 5, the strap may be formed by a band 9 being relatively narrow compared to the width of the sack and preferably made of the same material as said sack. The band is folded about a longitudinal central line 13, whereby the band is V-shape in cross section. In this manner it may grip about the projecting fold portions 5*a'*, 5*a''*, 5*b'*. 5*b''* since it is sewn thereto.

Instead of being quite short, the strap ends may be very long so as to permit a securing thereof to the projecting fold portions 5*a'*, 5*a''*, 5*b'*, 5*b''* in a large part of the sack height, preferably the entire sack height, cf. Fig. 4. This band 9 may in fact be so long that it extends along the entire periphery of the sack when the sack is flattened. In this manner the sack primarily comprises a strap 9 corresponding to the strap of Fig. 1, but it is also possible to provide a strap at the top of the sack, said top only being diagrammatically indicated at the wave line 15.

Fig. 2 illustrates how the band 10*a* forming the strap end when folded is of a width *x* being a short distance larger than the part *y* of the fold portions 5*a'*, 5*a''* projecting beyond the side edges 2*a* of the sack. When the sack is flattened, the band provides in this manner a predetermined protection of the side edges.

The invention may be varied in many ways without thereby deviating from the scope thereof. The band 9 may thus be of a material differing from the sack material. Besides, the sack material is preferably woven polyethylene or polypropylene. Instead of one strap 9, two or more may be provided. An extra sack may optionally be inserted in the sack, whereby the sack is strengthened.

CLAIMS

1. A sack for powdered or granular material and comprising a sack tube preferably of woven material, said sack tube comprising a bottom and at the top optionally a sack valve, characterised in that under the bottom of the sack at least one strap is provided, the ends of which when the sack is completely stretched, are diametrically oppositely secured to the side walls of the sack tube.

2. A sack as claimed in claim 1, whereby the sack tube preferably is made of an oblong piece of fabric folded and sewn along the side edges and furthermore comprising a bottom fold, characterised in that the strap ends when the sack is flattened, are secured preferably by sewing along part of each side edge of the sack.

3. A sack as claimed in claim 1 or 2, characterised in that along its two side edges double side folds with fold portions are provided, said folds extending a short distance past said side edges, and that the strap ends are secured to these fold portions.

4. A sack as claimed in one or more of the claims 1—5, characterised in that the strap is formed by a band being relatively narrow compared to the width of the sack and preferably being made of the same material as the sack, said band preferably being folded about its longitudinal central line in such a manner that it is V-shape in cross section, and that the band where secured grips about said projecting fold portions and is sewn thereto at its central line.

5. A sack as claimed in one or more of the claims 1—4, characterised in that the band forming the strap is of such a length that the band ends may be secured to said fold portions in large parts of the sack height, preferably the entire sack height.

6. A sack as claimed in one or more of the claims 1—5, characterised in that the band is of such a length that it when the sack is flattened may extend about the entire periphery of the sack, whereby it may optionally co-operate in forming a strap at the top of the sack.

7. A sack as claimed in one or more of the claims 1—6, characterised in that the band forming the strap when folded is of width being a short distance larger than the part of said fold portions projecting beyond the side edges of the sack, whereby the latter when the sack is flattened obtain a predetermined protection of the band.

8. A sack substantially as described above with reference to the accompanying drawing.

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